

Name _____ Period _____

Skill 35.01 Problem 1

3.0 moles of oxygen gas and 1.0 mole of nitrogen gas are confined to a 5.0 L container at 273 K. What is the total pressure?

Skill 35.01 Problem 2

Three of the primary components of air are carbon dioxide, nitrogen, and oxygen. In a sample containing a mixture of these gases at one atmosphere, the partial pressures of carbon dioxide and nitrogen are given as $P_{\text{CO}_2} = 0.285 \text{ mm Hg}$ and $P_{\text{N}_2} = 593.525 \text{ mm Hg}$. What is the partial pressure of oxygen?

Skill 35.01 Problem 3

A 2.5 L flask at 15°C contains a mixture of N_2 , He, and Ne. The partial pressures are 0.32 atm for N_2 , 0.15 atm for He, and 0.42 atm for Ne.

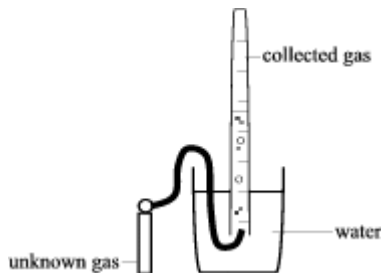
Calculate the total pressure of the mixture.

Calculate the moles of each gas present in the mixture

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Skill 35.02 Problem 1

A student collected a 90.0 mL sample of an unknown gas at 25°C. The total pressure was 721.2 mm Hg. The water vapor pressure at 25°C is . 23.76 mm Hg. What is the pressure of the dry gas?



Skill 35.03 Problem 1

At 28°C and 740 mm Hg pressure, 1.00 L of an unidentified gas has a mass of 5.16 g. What is the molar mass of this gas?

Calculate the moles of gas

Calculate the experimental molar mass of the oxygen gas.

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Skill 35.03 Problem 2

Oxygen gas generated by the decomposition of potassium chlorate was collected by water displacement. The mass of the test tube and contents before the reaction was 23.00 g. The mass of the test tube and contents after the reaction was 22.84. The volume of oxygen collected at 24°C and atmospheric pressure of 762 mm Hg was 128 mL. (vapor pressure H₂O @ 24°C = 23.76 mm Hg)

Calculate the pressure of the dry oxygen gas

Calculate the mass of oxygen gas produced

Calculate the moles of oxygen gas produced

Calculate the experimental molar mass of the oxygen gas

Skill 35.04 Problem 1

What is the density of a sample of ammonia gas (NH₃) if the pressure is 705 mm Hg and the temperature is 63°C?

Skill 35.04 Problem 2

One method for estimating the temperature of the center of the sun is based on the assumption that the center consists of gases that have an average molar mass of 2.00 g/mol. If the density of the center is 1.4×10^3 g/L at a pressure of 1.30×10^9 atm, calculate its temperature in Celsius.

Chemistry
Ticket Out the Door
Set 35: Ideal Gas Law Applications

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